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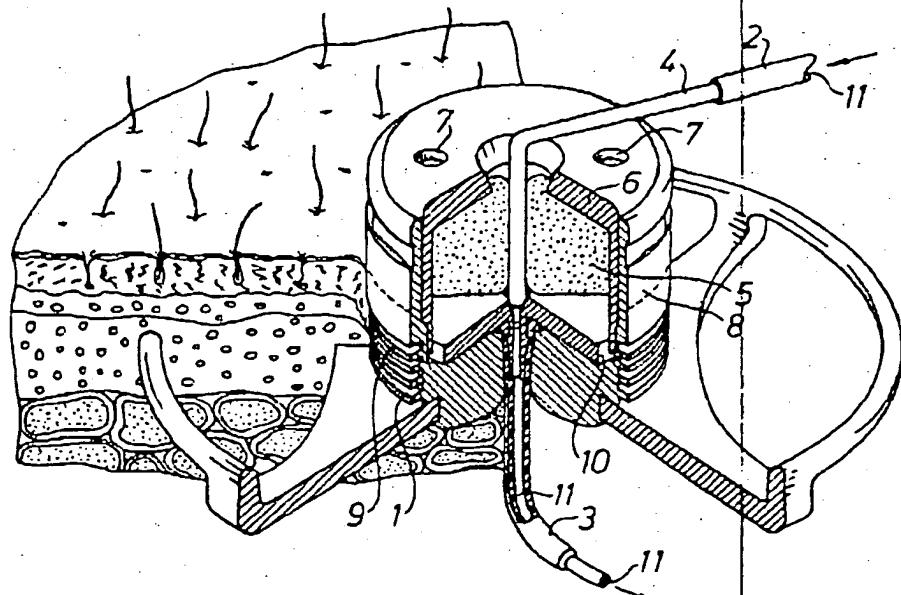
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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: COUPLING DEVICE IN A CUTANEOUS PASSAGEWAY



(57) Abstract

Device for sterile and leakproof interconnection in a resilient seal (5) enclosed by a cutaneous passageway (1) implanted in the body, of an inner (3) and an outer (2) catheter for supply of a drug or the like from an external container, ampoule or the like to a predetermined locality in the body.

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## COUPLING DEVICE IN A CUTANEOUS PASSAGeway

The present invention relates to a device for interconnection of an outer catheter having a rigid end portion, and an inner catheter in a cutaneous passageway to be implanted in the body, for supply of drugs or the like, of the kind described and shown in the international application PCT/SE87/00201.

In connection with FIG 6 of the drawings in said international application a cutaneous passageway is shown having a catheter for supply for example of a drug to the human body from an external container, ampoule or the like. The supply of a drug must take place under sterile conditions, and a suitable method is to exchange the outer catheter together with the drug container in the cutaneous passageway. This purpose is achieved according to the present invention by the coupling device having obtained the characterizing features of claim 1.

In order to illustrate the invention this will be described in more detail below reference being made to the accompanying drawing in which

FIG 1 shows the cutaneous passageway partly cut away, and the location thereof in the body before the outer catheter has been connected to the cutaneous passageway, and

FIG 2 shows the cutaneous passageway of FIG 1 but with the outer catheter connected thereto in order to allow communication with the inner catheter.

The outside shape of the cutaneous passageway 1 appears from the international application PCT/SE87/00201.

The novel feature of the present invention is the sealing device in the cutaneous passageway 1.

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which is shown in FIGS 1 and 2, in order to supply in a sterile and leakproof manner via catheters 2 and 3 for example a drug to a predetermined locality in the body through the cutaneous passageway 1.

5       The outer catheter 2 has at the connection end thereof a tube 4 of a rigid material, which is intended to penetrate the seal 5 provided in the cutaneous passageway 1, said seal comprising an elastomer, for example silicone, which recloses and seals when the outer catheter 2 is being exchanged or when the outer catheter 2 has been removed. The seal 5 is kept in place in the cutaneous passageway 1 by a threaded screw cap 6 which is screwed into the outer cylinder 8 of the cutaneous passageway 1 and by means 10 of which the sealing properties in relation to the friction against the connection end 4 of the outer catheter 2 can be controlled. This control is obtained by rotating the screw cap 6 by means of a special tool fitting into recesses 7 in the screw cap 6. The friction against the connection end 4 at the penetration 15 of the seal 5 should be as low as possible so as to prevent the zone 9 for tissue penetration of the cutaneous passageway 1 from coming loose from the body. For the same reason the diameter of the rigid end 4 of the outer catheter 2 should not exceed 3 mm. 20       The seal 5 must also seal against the attachment plate 10 of the inner catheter 3 so as to prevent leakage or passage of bacteria into the passage system 11 of the catheters 2 and 3.

25       The seal 5 can be made with a central aperture which is closed by tight fit at the mounting in the cutaneous passageway 1 and forms a guide only for the connection end 4 at the interconnection in the cutaneous passageway 1.

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## CLAIMS

1. Device for interconnecting an outer catheter with a rigid end portion, and an inner catheter in a cutaneous passageway (1) to be implanted in the body, for supply of drugs or the like, characterized in that a resilient seal (5) is enclosed in the cutaneous passageway (1) by means of a screw cap (6) and seals the inner catheter (3) against the outside of the cutaneous passageway (1) but allows establishment of communication between the inner catheter (3) and the outer catheter (2) by the rigid end portion (4) of the outer catheter (2) penetrating through the seal (5) up to and in register with the inlet passage (11) of the inner catheter (3).

2. Device as in claim 1 wherein the inner catheter (3) is attached to a plate (10) at the inner side of the resilient seal (5) which seals against the plate.

3. Device as in claim 1 or 2 wherein the rigid end portion (4) of the outer catheter (2) has a maximum diameter of 3 mm.

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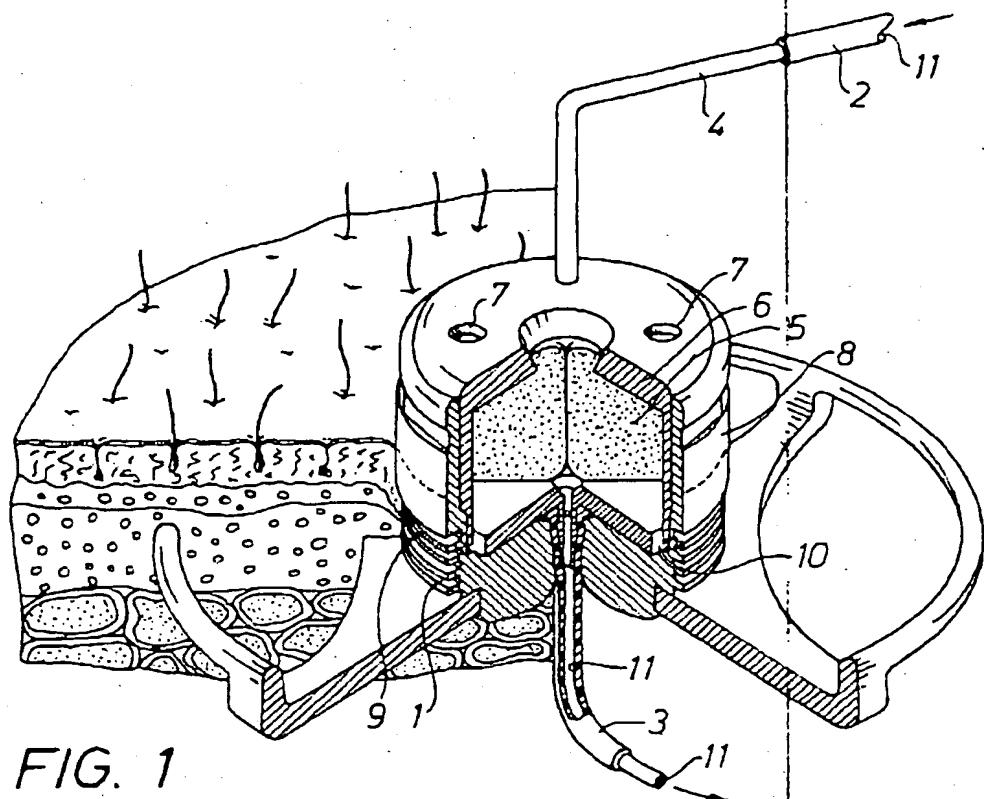


FIG. 1

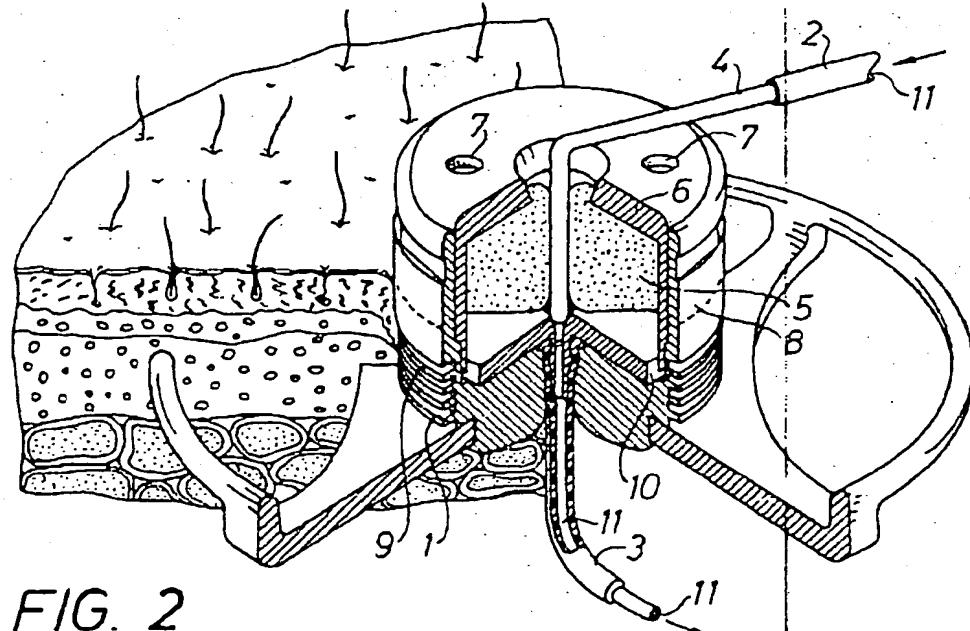


FIG. 2

## INTERNATIONAL SEARCH REPORT

International Application No PCT/SE89/00030

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)<sup>a</sup>

According to International Patent Classification (IPC) or to both National Classification and IPC 4

A 61 M 31/00

## II. FIELDS SEARCHED

Minimum Documentation Searched<sup>b</sup>

Classification System <sup>c</sup>	Classification Symbols
IPC 4	A 61 M 1/00, 1/02, 23/00-27/00, 31/00, 37/00, 37/04
US Cl.	128:276-278, 348-350; 604:27-29, 41, 42, 51-53, 93, 96, 158, 160, 175, 267, 283

Documentation Searched other than Minimum Documentation  
to the Extent that such Documents are Included in the Fields Searched<sup>d</sup>

SE, NO, DK, FI classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT<sup>e</sup>

Category <sup>f</sup>	Citation of Document, <sup>g</sup> with indication, where appropriate, of the relevant passages <sup>h</sup>	Relevant to Claim No. <sup>i</sup>
A	DE, A1, 2 656 244 (HOECHST AG) 15 June 1978	1
A	FR, A1, 2 135 326 (GULF OIL CORPORATION) 15 December 1972	1
A	EP, A1, 0 039 183 (W.L.GORE & ASSOCIATES INC.) 4 November 1981	1
A	WO, A1, 87/06122 (LUNDGREN, DAN) 22 October 1987	1

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"Z" document member of the same patent family

## IV. CERTIFICATION

Date of the Actual Completion of the International Search  
1989-02-28Date of Mailing of this International Search Report  
1989-04-14

International Searching Authority

Signature of Authorized Doctor

Swedish Patent Office

Leif Vingård

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